Chapter 2

Existing Bicycling Conditions

Foundation for a Bicycle Friendly City

Louisville is Kentucky's largest city, offering an array of activities and events that attract bicyclists from local communities and all over Louisville Metro. Louisville developed as a city where recreational bicycling is an important aspect of its culture.

The largest ride in the recorded history of Louisville occurred in October of 1897 when over 10,000 people rode from downtown Louisville to Iroquois Park via 3rd Street and Southern Parkway. The Olmsted Park System remains intact today and will be augmented with additional park space by the Louisville Loop Trail, a 100-mile continuous paved multi-use trail around Louisville, as it is completed. [1]

Encouragement E-Team meeting (2009)

Louisville's Bike Master Plan reflects public input in a number of ways including focus groups and on-line survey focusing on bicycling in Louisville. Please see appendix and for a list of focus group meetings and Bicycle Summit II comments respectively.

Barriers to Bicycling:
Missing connections, roadway facilities, distance and safety concerns create barriers to bicycling for Louisville residents. The lack of bicycle facilities to destinations such as parks, shopping and schools was cited as a barrier to bicycling in the Bike Summit II breakout session comments (Appendix N). Bike Summit II respondents also suggested that complete bicycle networks are needed to better connect neighborhoods both internally, as well as externally. For example, a respondent who lives in Jeffersontown reports that the lack of safe bicycle facilities make it difficult to bike to work and other destinations.

Bicycle System Network

Before Bike Louisville can plan future bicycle facilities, it is important to determine the location of existing facilities. Louisville's current bicycle network is 170 miles (Table 2.1 and Figure 2.1). These facilities range from bike lanes to multi-use trails. Table 2.1 describes each bicycle facility and its respective length. The bicycle network currently reaches a number of areas, but there are many more areas without bicycle facilities. By understanding these areas will better help Bike Louisville plan where and what type of bicycle facilities should be installed. The next step in understanding where and how the bicycle network is expanded; this can be seen through Louisville's crash data and a latent demand analysis.

Bike Lane on Johnson Town Road (2009)

[1] See http://www.louisvilleky.gov/MetroParks/cityofparks/metro_loop_trail.htm for more information.

Table 2.1: Miles of Facilities Existing for Bicycle Facility Network		
Facility Type	Existing	1. For on-road bicycle facilities, total miles represent bicycle lanes on each side of the roadway 2. Signed local street connections include shared roadways with bicycle route signs but no other designated bicycle facilities.
Bicycle Lanes[1]	57	
Shared lane pavement markings (Sharrows)	2.3	
Other on-road bicycle facilities	0	
Signed local street connections[2]	89.83	
Multi-use trails	24.26	
Other off-road bicycle facilities	20.0	
Total Network	193	

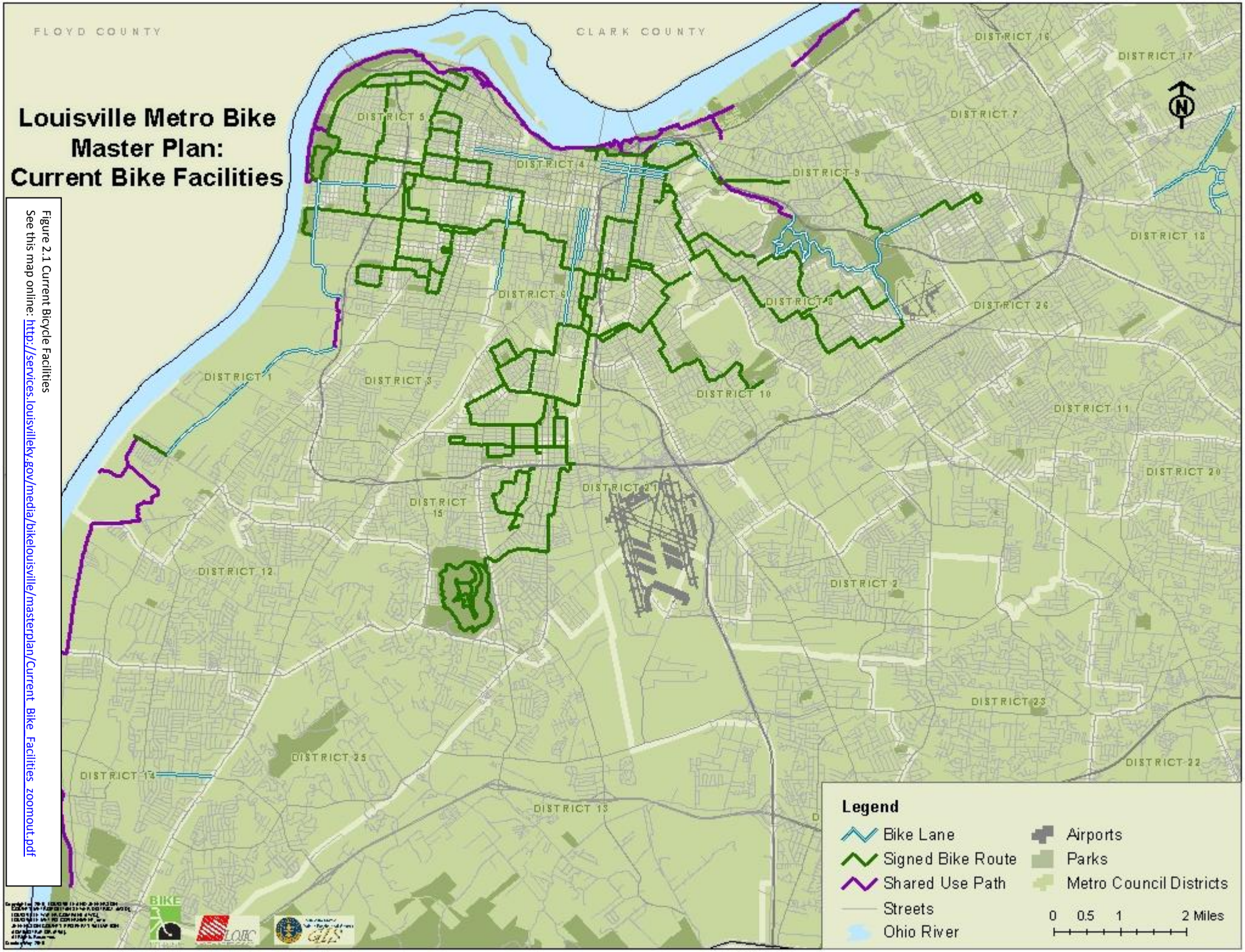


Figure 2.1 Current Bicycle Facilities
See this map online: http://services.louisvilleky.gov/media/bikelouisville/masterplan/Current_Bike_Facilities_zoomout.pdf

Figure 2.2 Current Mountain Biking Facilities
See this map online: http://services.louisvilleky.gov/media/bikelouisville/masterplan/Current_Bike_Trails.pdf

Mountain biking is a sport which consists of riding bicycles off-road, often over rough terrain, using specially adapted mountain bikes or hybrid/cross road bikes. Mountain bikes share similarities with other bikes, but incorporate features designed to enhance durability and performance in rough terrain.

Mountain Biking in Cherokee Park

Mountain biking is growing but can generally be broken down into multiple categories for example: XC cross country, DH downhill, FR freeride, AM All Mountain, Urban trials/street riding and DJ Dirt Jumping. Each has differing levels of safety-consciousness and varying types of bikes and riding gear. A combination sport named mountain bike orienteering adds the skill of map navigation to mountain biking.

Louisville has 20 miles of mountain bike trails. Several miles are within the most urban areas of Louisville such as the trail in figure to the left. This trail is known as the Cherokee Park trail and it is incredibly convenient for a quick cycling fix. Locals include it in their pre-and post-work rides, and it's open for night riding year round. The trails have been revamped recently with help from the Kentucky Mountain Bike Association. Louisville's current mountain biking master plan can be found my clicking this link: http://services.louisvilleky.gov/media/bikelouisville/masterplan/17%20Draft%20M%20Louisville%20Loop%20Single%20Track%20Master%20Plan%20Rev1.2.pdf

Cyclo-cross bicycles roughly resemble the racing bicycles used in road racing. The major differences between the two are the frame geometry, and the wider clearances that cyclo-cross bikes have for their larger tires and mud and other debris that they accumulate. Recently Louisville has made a name for itself by hosting a national cyclo-cross race. The race is know as the USGP and has attracted international talent. Louisville is also going to host the Cyclo-cross worlds, which will be the fist time Cyclo-cross worlds, has ever been in the States.

Louisville's National Cyclo-cross event will become the 2012 and 2013 Cyclo-cross World Championships

The Louisville Extreme Park is one of the nation's best skate parks, with awesome features, including a 24 foot full-pipe! The park offers a great balance of street-style, transition style and vert. The public skatepark is owned by Louisville Metro Government and operated by Metro Parks.
The park, completed in April 2002, includes 40,000 square feet of outdoor concrete skating surface and a wooden vert ramp, along with restrooms. The park is open 6 a.m. to 11 p.m., seven days a week.
The Louisville Extreme Park provides skateboarding, in-line skating and biking opportunities for people of all ages and skill levels. Centrally located downtown near Waterfront Park and Slugger Field, the skatepark is accessible from all parts of the community by bus and car, or by self-powered means via the RiverWalk and connecting shared-use paths! The park was designed with the input of a local task force.

Louisville is home of a world class BMX facility. BMX racing is a type of off-road bicycle racing. The format of BMX was derived from motocross racing. BMX bicycle races are sprint races on purpose-built off-road single-lap race tracks. The track usually consists of a starting gate for up to eight racers, a groomed, serpentine, dirt race course made of various jumps and rollers and a finish line. The course is usually flat, about 15-foot (4.6 m) wide and has large banked corners that help the riders maintain speed.


Louisville hosts BMX Grand Nationals

Louisville's BMX track is considered one of the best in the country and hosts the National BMX Grand Championships every Labor Day Weekend. All riders must wear protective gear and comply with park and track rules. BMX races are held on weekends from early spring through the fall months. The track is open from March 1 - October 31 and is open to the public when races are not being held.

Providing bicycle parking is a key component of creating an attractive and functional bicycling network. According to the Stolen Bicycle Registry it is estimated that over 1.5 million bicycles are stolen every year. Providing safe and secure bicycle parking expands Louisville's bicycle network, but also encourages more people to ride since they will have a safe and secure place to leave their bicycle. Refer to Appendix H for Louisville's Bicycle Parking Requirements by Land Use.

Bicyclinginfo.org classifies bicycle parking facilities into two classes. Class 1 being lockers or racks in enclosed areas and Class Two being stands or racks in unsupervised areas.

Long Term Parking:
Long term parking is used when bicycles are left all day, or overnight, and in some cases even longer. In such cases the level of security and protection needs to be greater due to the increase in exposure to the outside elements and length of time unsupervised. There are three common ways to provide long term parking: fully enclosed lockers accessible only by the user, a continuously monitored facility and a restricted access facility in which short term facilities are provided and access is restricted to only the owners of the bicycles stored within.

Louisville's bicycle lockers

Long-term parking options include:

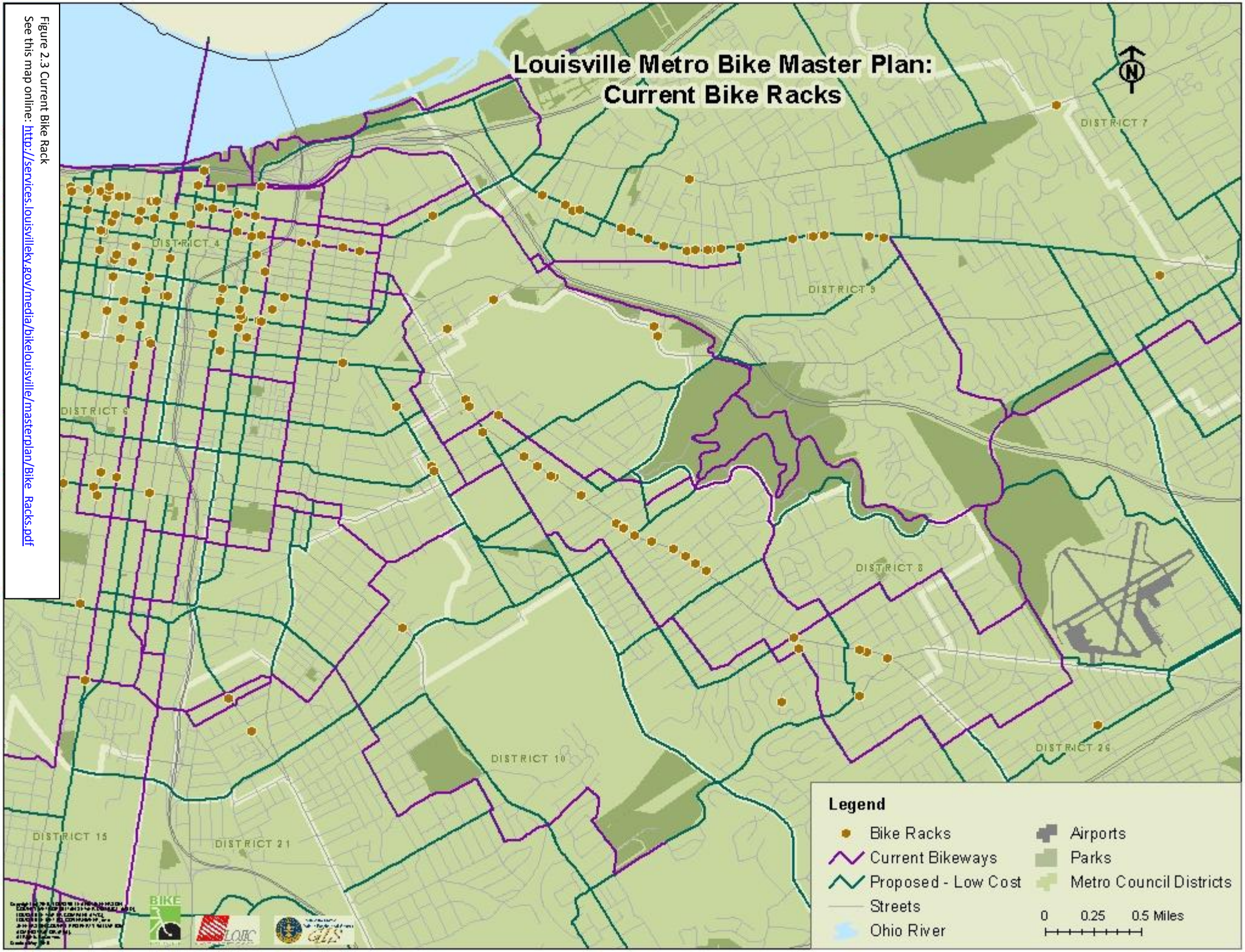
- Lockers, individual lockers for one or two bicycles
- Racks in an enclosed, lockable room
- Racks in an area that is monitored by security cameras or guards (within 100 feet)
- Racks or lockers in an area always visible to employees

Short Term Parking:
The most common form of bicycle parking is short term. Short term parking is classified as being only a few hours. Example could be as someone is going into the bank, grocery store, class or a Government service center. This can be as simple as attaching a bicycle frame and wheels to a stationary object such as a bike rack. Below are other factors for short term parking:


On-street bicycle parking is considered short term bicycle parking

- Well distributed (i.e., it's likely better to have four or five racks spread out along one city block rather than a group of four or five racks mid-block)
- Visible to the cyclist
- In areas of high pedestrian activity, to discourage would-be thieves

Figure 2.3 Current Bike Rack
See this map online: http://services.louisvilleky.gov/media/bikelouisville/masterplan/Bike_Racks.pdf

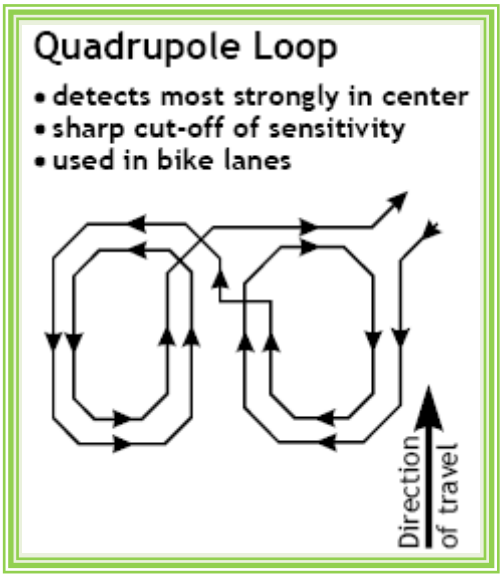


Street Crossings

Street crossings present one of the greatest safety hazards for bicycle travel. Through the public participation process and field observations, a number of concerns were raised related to street crossings in Louisville:

- Angled streets create skewed intersections increasing crossing distance for bicycle and allowing motorists to make higher speed turns
- Multi-lane arterials carry substantial traffic and create wide intersections and long crossings for bicyclists.
- Motorist behaviors, including failing to provide bicyclists adequate room while passing, running red lights and exceeding posted speed limits significantly increase safety hazards for bicyclists. Turning motorists are often in conflict with bicyclists crossing major arterials.

Bicyclists often fail to use proper lights while riding in dark conditions, wear a bicycle helmet, or ride on the sidewalk or on the wrong side of the road against oncoming traffic. These behaviors put bicyclists at risk. Crossing treatments such as high visibility bike lanes, median divided roadways, and other bicycling friendly facilities are lacking in many locations. Additional safety measures are needed around schools (such as, high visibility signs, traffic calming roadways and education and enforcement efforts).



Traffic signal timing should consider all modes including bicycling. Therefore, all traffic signals should facilitate safe bicycle crossings. This includes providing a minimum green time and a minimum yellow time to ensure that bicyclists are able to clear intersections, per the AASHTO Guide for the Development of Bicycle Facilities (1999 or latest edition). This is critical on the Signed Bicycle Route System. It is important to ensure that adjusted signal timing for bicycle crossings also facilitates safe pedestrian crossings.


On-street bicycle stencil marking proper wheel placement to trigger the traffic signal

Currently new detection technologies such as inductive loop sensors can tell the difference between bicycles and motor vehicles. This has helped improve bicycle detection at actuated signalized intersections and make it possible to detect bicyclists at an intersection.

In addition, all future roadway improvement projects should address bicycle crossing needs as a routine part of the design process. Specific design guidelines for bicycle crossing improvements are provided in the Louisville Loop design manual (Appendix J).

Bicycle Crash Data

Data for the crash analyses were obtained from the Kentucky State Police (KSP) Collision Analysis for the Public website.[2] Crash data from January 1, 2006 to May 31, 2009 was used for these analyses. Maps of the location and severity of crashes can be seen in appendix D.

Bicycle crashes were reviewed (Table 2.2). Between January 1, 2006 and May 31, 2009, the KSA database reports 532 pedestrian crashes. As shown below, the trend across the years is fairly consistent – with an average of approximately 165 crashes per year. Of the years for which there is complete data, a high of three fatalities occurred in 2008.

As was the case with pedestrian crashes, bicycle crashes in conditions other than daylight account for a disproportionate share than might be expected relative to the number of trips made at those times. In the case of pedestrians, 41% of reported crashes took place outside of daylight conditions. This disproportionate distribution again suggests that there is a higher risk associated with biking in suboptimal lighting condition. The factors that contribute to this increase are similar to those described in the section about bicycle crashes above: fatigue on the part of either party, a more likely influence of alcohol, and reduced visibility.

Table 2.2 Louisville's Crash Statistics	**Bike Data**			**Pedestrian Data**		
Year	2007	2008	2009	2007	2008	2009
Reported Injuries	132	117	104	255	257	224
Fatalities	1	3	2	13	24	8

Motor Vehicle Speeds

Higher motor vehicle speeds create a less comfortable environment for bicyclists, increase required stopping distance, and increase the frequency and severity of bicycle crashes. A bicyclist hit by a motorist traveling 40 mph has a slim chance of survival compared to a bicyclist who is hit by a car that is traveling only 20 mph (see Figure 2.2).

Louisville Metro Department of Public Works conducted a speed study in 2008 and 2009 on arterials and collectors throughout Louisville. The 85th percentile speeds on many of Louisville's principal and minor arterials were found to be well over the posted speed limit. Findings of the speed study for the priority corridors identified through this plan can be seen in the table below.

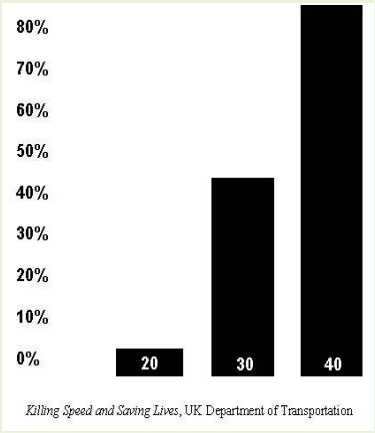


Figure 2.2 A bicyclist's chance of death if hit by a motor vehicles traveling at different speeds

[2] http://crashinformationky.org/KCAP/Public/Home.aspx

Table 2.3
85th percentile speeds on Louisville's principal and minor arterials

NAME	BEGINNING	END	POSTED SPEED	85TH %	CLASSIFICATION	MPH>
Whipps Mill	Hurstbourne Lane		35mph	46.11mph	MINOR ARTERIAL	6mph
Portland Ave	23rd St	24th St	35mph	41.86mph	MINOR ARTERIAL	7mph
Chamberlain Lane			55mph	46.64mph	PRIMARY	>8mph
Sheperdsville	Famous Way		35mph	45.32mph	MINOR/EXPRESS	10mph
Old Bardstown			45mph	50.52mph	PRIMARY	6mph
4800 Jennings Ln			35mph	47.23mph	PRIMARY	12mph
St Catherine			35mph	37.90mph	PRIMARY	3mph
Garland	32nd St	Hazel	25mph	36.08mph	PRIMARY	12mph
Routt Rd	Taylorsville Road	Old Routt Rd	55mph	65.89mph	PRIMARY	11mph
Seneca Park Road			25mph	38.52mph	PRIMARY	14mph
Applegate Ln			25mph	47.87mph	SECONDARY	23mph
Broad Run Road	at Back Run		35mph	30.47mph	SECONDARY	>5mph
Backrun	at Broad Run Road		35mph	31.88mph	PRIMARY COLLECTOR	>3mph
Billtown	Fairground		35mph	49.54mph	MINOR/EXPRESS	15mph
Fairmount			35mph	17.50mph	SECONDARY	>18mph
Deering			25mph	24.21mph	SECONDARY	>1mph
Flower Vale			25mph	24.79mph	SECONDARY	>1mph
Frankfort	at Weikel		35mph	33.86mph	RESIDENTIAL	>3mph
Hubbards ln			35mph	36.90mph	MINOR SECONDARY	2mph
Schaffer	Billtown Rd		35mph	47.60mph	RESIDENTIAL	13mph
Vine	Breckenridge		35mph	40.51mph	MINOR	6mph
Shelbyville	E Long Run Rd		45mph	64.69mph	MINOR	20mph
St Andrews Church	St Anthonys		45mph	43.41mph	MINOR	>2mph
Vaughn Mill	Pennsylvania		25mph	27.67mph	PRIMARY	3mph
5738 Watterson Trail	Hurstbourne Parkway		35mph	39.82mph	RESIDENTIAL	5mph
River Rd	Avish		35mph	44.08mph	MINOR	9mph
Whipps Mill			45mph	49.14mph	PRIMARY	4mph
Shelby	Camp	Ormsby	25mph	27.90mph	MINOR	3mph
Bank			35mph	39.84mph	MINOR	5mph
Grade	Beanblossom	Fern Grade	35mph	34.10mph	PRIMARY	>1mph

NAME	BEGINNING	END	POSTED SPEED	85TH %	CLASSIFICATION	MPH>
Goss	Logan		25mph	34.27mph	MINOR	9mph
3400 W Virginia Ave	Dumesnil	Hale	35mph	27.94mph	RESIDENTIAL	>7mph

Bicycle Safety Innovations

Ensuring Louisville's bicycle facility network is properly maintained is often overlooked with ribbon cutting events, but is just as important. Bike Louisville is currently working on a plan to ensure all existing bicycle lanes, signed and off road routes and venues are maintained. As Bike Louisville moves forward with the bicycle facility network this maintenance plan will be integrated into future bicycle facilities. Another maintenance element is reporting to the community once a trail is maintained. This plan will allow for both Bike Louisville and bicycles to up date each other on the conditions of the bicycle lanes, signed and off road routes and other bicycling venues.

Bike Louisville is currently working on a plan to ensure all existing bicycle lanes, signed and off road routes and venues are maintained.

One example of an area that will be included into the maintenance plan is the maintenance of railroad crossings. Railroad crossings can be particularly dangerous for cyclist. It is important to maintain the crossing in order to prevent bicycle crashes.

Local cyclist testing out the new railroad crossing

While Louisville has many of the elements needed for a bicycling friendly city, there are opportunities to improve conditions for bicyclists. Recommendations in the following chapter to amend Louisville's policies will create standards for facilities that will improve bicycle safety and comfort. With these benefits in mind, the Bike Master Plan sets forth a series of actions which will improve bicycling conditions in Louisville. Implementation of this plan will result in an improved bicycle environment which will encourage an increase in bicycling by residents and visitors, improve their safety, and enable additional residents to choose bicycling as their primary transportation choice.